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Frank C. Eisenschenk, Ph.D., Patent Attorney

INFORMATION DISCLOSURE STATEMENT Examining Group 2613 Patent Application Docket No. G-194US03PCT Serial No. 10/519,335

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit

2613

Applicants

Laurent Cavarec, Ilya Chumakov, Benoit Destenaves, Catherine Gonthier,

Isabelle Elias

Serial No.

10/519,335

Filed

December 22, 2004

Conf. No.

9318

For

Novel KCNQ Polypeptides, Modulators Thereof, and Their Uses in the

Treatment of Mental Disorders

Mail Stop Amendment Commissioner for Patents P.O. Box 1450

Alexandria, VA 22313

INFORMATION DISCLOSURE STATEMENT <u>UNDER 37 CFR §§1.97 AND 1.98</u>

Sir:

The patent application referred to above was filed in the U.S. Patent Office as a national application under 35 USC §371. Applicants have been notified that a copy of the International Search Report has been made available in the national stage file as indicated on the Notice of Acceptance of the Application Under 35 USC 371 (Form PCT/DO/EO/903). The Notice does not indicate whether copies of the references cited in the International Search Report were received by the Patent Office. Therefore, copies of the references cited in the International Search Report are enclosed for the Examiner's convenience. However, Applicants have not submitted copies of the U.S. patents cited on attached Form PTO/SB/08 pursuant to 37 CFR 1.98(a)(2)(ii). In accordance with 37 CFR §1.56, Applicants hereby request that the references cited in the International Search

Report and listed on the attached form PTO/SB/08 be made of record and considered in the examination of the subject application.

Published International Application No. WO 01/09612, cited as F3 on the attached form PTO/SB/08, is written in a foreign language. In accordance with MPEP §609A(3), Applicants are submitting herewith a copy of the International Search Report from corresponding International Application No. PCT/EP03/50246. Applicants have also included U.S. Patent No. 6,472,165, cited U2, on attached form PTO/SB/08. The U.S. patent is cited on the International Search Report as a patent family member of International Application No. WO 01/09612 and is believed to be an English language equivalent. Applicants respectfully request that these references be made of record and considered in the examination of the subject application.

Applicants have also listed on form PTO/SB/08 numerous references which have not been cited in the international search report. Copies of these references are enclosed with this IDS. Applicants respectfully request that these references be made of record and considered in the examination of the subject application.

Applicants respectfully assert that the substantive provisions of 37 CFR §§1.97 and 1.98 are met by the foregoing statement.

Respectfully submitted,

Frank C. Eisenschenk, Ph.D.

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FCE/sl

Attachment: Form PTO/SB/08; copies of cited references.

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PTO/SB/08A (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
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Substitute for fo	orm 1449A/PTO	-		Complete if Known		
			UDE	Application Number	10/519,335	
	ATION DISCL			Filing Date	December 22, 2004	
STATEIN	STATEMENT BY APPLICANT			First Named Inventor	Laurent Cavarec	
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				Examiner Name		
Sheet	1	of	5	Attorney Docket Number	G-194US03PCT	

			U.S. PATENT DO	OCUMENTS	
Examiner Initials*	Cite No. 1	Document Number Number - Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	U1	US-6,372,767 B1	04-16-2002	McNaughton-Smith et al.	All
	U2	US-6,472,165 B1	10-29-2002	Rundfeldt et al.	All
	U3	US-			
	U4	US-			
	U5	US-			
	U6	US-			
	U7	US-			
	U8	US-		,	
	U9	US-			

		FOREIGN	PATENT DOCU	JMENTS		
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code 3 - Number 4 - Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T⁵
	F1	WO 01/91026 A2	11-29-2001	Genset	All	
	F2	WO 99/31232 (CD-ROM)	06-24-1999	Zeneca Limited	All	
	F3	WO 01/09612 A2 (CD-ROM)	02-08-2001	Arzneimittelwerk Dresden	All	
	F4	WO 02/12279 A2 (CD-ROM)	02-14-2002	Genset	All	
	F5 F6	WO 03/019186 A2	03-06-2003	Glaxo Group Limited <i>et al.</i>	All	
·	F7					<u> </u>

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		e for form 1449B/PT(OCUBE	Application Number	10/519,335
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	Sheet	2	of	5	Attorney Docket Number	G-194US03PCT

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²
	R1	ALTSCHUL, S. F. et al. "Basic Local Alignment Search Tool" J. Mol. Biol., 1990, pp. 403-410, Vol. 215.	
	R2	ALTSCHUL, S. F. et al. "Gapped BLAST and PSI-BLAST: A New Generation of Protein Database Search Programs" <i>Nucleic Acids Research</i> , 1997, pp. 3389-3402, Vol. 25, No. 17.	
	R3	ANDRIEUX, A. et al. "The Suppression of Brain Cold-Stable Microtubules in Mice Induces Synaptic Defects Associated with Neuroleptic-Sensitive Behavioral Disorders" <i>Genes and Development</i> , 2002, pp. 2350-2364, Vol. 16.	
	R4	BIERVERT, C. et al. "A Potassium Channel Mutation in Neonatal Human Epilepsy" Science, January 16, 1998, pp. 403-406, Vol. 279.	
	R5	BIERVERT, C. et al. "Structural and Mutational Analysis of KCNQ2, the Major Gene Locus for Benign Familial Neonatal Convulsions" Hum. Genet., 1999, pp. 234-240, Vol. 104.	
	R6	BORRESEN, A-L. et al. "Detection of Base Mutations in Genomic DNA using Denaturing Gradient Gel Electrophoresis (DGGE) followed by Transfer and Hybridization with Gene-Specific Probes" <i>Mutation Research</i> , 1988, pp. 77-83, Vol. 202.	
	R7	DEMPSTER, A. P. et al. "Maximum Likelihood from Incomplete Data via the EM Algorithm" JRSSB, 1977, pp. 1-38, Vol. 39.	
	R8	DETERA-WADLEIGH, S. D. et al. "A High-Density Genome Scan Detects Evidence for a Bipolar-Disorder Susceptibility Locus on 13q32 and other Potential Loci on 1q32 and 18p11.2" <i>Proc. Natl. Acad. Sci. USA</i> , May 1999, pp. 5604-5609, Vol. 96.	
	R9	DEVEREUX, J. et al. "A Comprehensive Set of Sequence Analysis Programs for the VAX" Nucleic Acids Research, 1984, pp. 387-395, Vol. 12, No. 1.	
	R10	ELBASHIR, S. M. et al. "RNA Interference is Mediated by 21 and 22-Nucleotide RNAs" Genes and Development, 2001, pp. 188-200, Vol. 15.	
	R11	ELLINGTON, A. D. et al. "In vitro Selection of RNA Molecules that Bind Specific Ligands" Nature, August 30, 1990, pp. 818-822, Vol. 346.	
	R12	EXCOFFIER, L. <i>et al.</i> "Maximum-Likelihood Estimation of Molecular Haplotype Frequencies in a Diploid Population" <i>Mol. Biol. Evol.</i> , 1995, pp. 921-927, Vol. 12, No. 5.	

Examiner]	Date
Signature		Considered

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	titute for form 1449B/PT	-	OCUDE	Application Number	10/519,335	
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Sheet	3	of	5	Attorney Docket Number	G-194US03PCT	

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the item (book, magazine, joumal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²
	R13	GAMPER, N. et al. "Subunit-Specific Modulation of KCNQ Potassium Channels by Src Tyrosine Kinase" Journal of Neuroscience, January 1, 2003, pp. 84-95, Vol. 23, No. 1.	
	R14	GRANTHAM, R. "Amino Acid Difference Formula to Help Explain Protein Evolution" Science, September 6, 1974, pp. 862-864, Vol. 185.	
	R15	GROMPE, M. et al. "Scanning Detection of Mutations in Human Ornithine Transcarbamoylase by Chemical Mismatch Cleavage" <i>Proc. Natl. Acad. Sci. USA</i> , August 1989, pp. 5888-5892, Vol. 86.	
	R16	HU, P. et al. "Molecular Cloning and Mapping of the Brain-Abundant B1γ Subunit of Protein Phosphatase 2A, <i>PPP2R2C</i> , to Human Chromosome 4p16" <i>Genomics</i> , 2000, pp. 83-86, Vol. 67.	
	R17	KAELIN, W. G. et al. "Identification of Cellular Proteins That Can Interact Specifically with the T/E1A-Binding Region of the Retinoblastoma Gene Product" Cell, February 8, 1991, pp. 521-532, Vol. 64.	
	R18	KAELIN, W. G. <i>et al.</i> "Expression Cloning of a cDNA Encoding a Retinoblastoma-Binding Protein with E2F-Like Properties" <i>Cell</i> , July 24, 1992, pp. 351-364, Vol. 70.	
	R19	KIM, S. <i>et al.</i> "Multiplex Genotyping of the Human β2-Adrenergic Receptor Gene using Solid-Phase Capturable Dideoxynucleotides and Mass Spectrometry" <i>Analytical Biochemistry</i> , 2003, pp. 251-258, Vol. 316.	
	R20	LESSA, E. P. et al. "Screening Techniques for Detecting Allelic Variation in DNA Sequences" Molecular Ecology, 1993, pp. 119-129, Vol. 2.	
	R21	MAIN, M. J. et al. "Modulation of KCNQ2/3 Potassium Channels by the Novel Anticonvulsant Retigabine" <i>Molecular Pharmacology</i> , 2000, pp. 253-262, Vol. 58.	
	R22	NEWTON, C. R. <i>et al.</i> "Analysis of any Point Mutation in DNA. The Amplification Refractory Mutation System (ARMS)" <i>Nucleic Acids Research</i> , November 7, 1989, pp. 2503-2516, Vol. 17, No. 7.	
	R23	ORITA, M. et al. "Detection of Polymorphisms of Human DNA by Gel Electrophoresis as Single-Strand Conformation Polymorphisms" <i>Proc. Natl. Acad. Sci. USA</i> , April 1989, pp. 2766-2770, Vol. 86.	

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Complete if Known Substitute for form 1449B/PTO **Application Number** 10/519,335 INFORMATION DISCLOSURE **Filing Date** December 22, 2004 STATEMENT BY APPLICANT **First Named Inventor Laurent Cavarec Group Art Unit** (use as many sheets as necessary) **Examiner Name** Sheet of 5 **Attorney Docket Number** G-194US03PCT

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article, (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		PAN, Z. et al. "Alternative Splicing of KCNQ2 Potassium Channel Transcripts Contributes	
		to the Functional Diversity of M-Currents" <i>Journal of Physiology</i> , 2001, pp. 347-358, Vol.	
	R24	531.2.	_
	R25	PEARSON, W. R. "Rapid and Sensitive Sequence Comparison with FASTP and FASTA" <i>Methods in Enzymology</i> , 1990, pp. 63-98, Vol. 183.	
	R26	PEARSON, W. R. et al. "Improved Tools for Biological Sequence Comparison" Proc. Natl. Acad. Sci. USA, April 1988, pp. 2444-2448, Vol. 85.	
	R27	RUANO, G. <i>et al.</i> "Haplotype of Multiple Polymorphisms Resolved by Enzymatic Amplification of Single DNA Molecules" <i>Proc. Natl. Acad. Sci. USA</i> , August 1990, pp. 6296-6300, Vol. 87.	
	R28	SARKAR, G. et al. "Haplotyping by Double PCR Amplification of Specific Alleles" BioTechniques, 1991, pp. 436-440, Vol. 10, No. 4.	
	R29	SCHWAKE, M. et al. "Surface Expression and Single Channel Properties of KCNQ2/KCNQ3, M-Type K ⁺ Channels Involved in Epilepsy" <i>Journal of Biological Chemistry</i> , May 5, 2000, pp. 13343-13348, Vol. 275, No. 18.	
	R30	SINGH, N. A. et al. "sA Novel Potassium Channel Gene, KCNQ2, is Mutated in an Inherited Epilepsy of Newborns" Nature Genetics, January 1998, pp. 25-29, Vol. 18.	
	R31	SMITH, T. F. et al. "Comparison of Biosequences" Advances in Applied Mathematics, 1981, pp. 482-489, Vol. 2.	
	R32	TOWBIN, H. et al. "Electrophoretic Transfer of Proteins from Polyacrylamide Gels to Nitrocellulose Sheets: Procedure and some applications" <i>Proc. Natl. Acad. Sci. USA</i> , September 1979, pp. 4350-4354, Vol. 76, No. 9.	
	R33	WANG, H-S. et al. "KCNQ2 and KCNQ3 Potassium Channel Subunits: Molecular Correlates of the M-Channel" Science, December 4, 1998, pp. 1890-1893, Vol. 282.	
	R34	WEN, S-Y. et al. "Rapid Detection of the Known SNPs of CYP2C9 using Oligonucleotide Microarray" World J. Gastroenterol., 2003, pp. 1342-1346, Vol. 9, No. 6.	
	R35	WU, D. Y. et al. "Allele-Specific Enzymatic Amplification of β-Globin Genomic DNA for Diagnosis of Sickle Cell Anemia" <i>Proc. Natl. Acad. Sci. USA</i> , April 1989, pp. 2757-2760, Vol. 86.	

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE				Application Number	10/519,335
				Filing Date	December 22, 2004
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	R36	JENTSCH, T. J. et al. "Pathophysiology of KCNQ Channels: Neonatal Epilepsy and Progressive Deafness" <i>Epilepsia</i> , 2000, pp. 1068-1069, Vol. 41, No. 8.						
4.	R37	TINEL, N. et al. "The KCNQ Potassium Channel: Splice Variants, Functional and Developmental Expression. Brain Localization and Comparison with KCNQ3" FEBS Letters, November 6, 1998, pp. 171-176, Vol. 438, No. 3.						
	R38	SMITH, J. S. et al. "Differential Expression of KCNQ2 Splice Variants: Implications to M Current Function during Neuronal Development" <i>Journal of Neuroscience</i> , February 15, 2001, pp. 1096-1103, Vol. 21, No. 4.						
	R39	SwissProt Accession No. O43526.						
	R40	EMBL Accession No. NM_172107.						
	R41	EMBL Accession No. NM_172106.						
	R42	EMBL Accession No. NM_004518.						
	R43	EMBL Accession No. NM_172108.						
	R44	EMBL Accession No. NM_172109.						
	R45	Genbank Accession No. AF086924.						
	R46	Genbank Accession No. AF033348.						
	R47	RefseqN Accession No. NT_006051.						

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